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Arizona Corporation Commission
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October 26, 2007

Arizona Corporation Commission
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1200 West Washington Street
Phoenix, Arizona 85007

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AZ CORP COMMISSION
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RE: RENEWABLE ENERGY ACQUISITON PLAN
Docket No. E-01345A-05-0816, E-01345A-05-0826, E-01345A-05-0827

Dear Sir or Madam:

Pursuant to Commission Decision No. 69663, Arizona Public Service (APS) is filing its Renewable Energy Acquisition Plan. Since the date of Decision No. 69663, the Renewable Energy Standard (RES) became effective and APS filed its first annual RES Implementation Plan on August 7, 2007. That plan was later amended on August 30, 2007. As part of the RES Implementation Plan, APS detailed its anticipated renewable energy requirements for 2008 through 2012; a schedule for the addition of resources; and methods for the procurement for those resources. APS incorporated the requirements of Decision No. 69663 into its RES Implementation Plan and APS believes that the elements of the RES Implementation Plan achieve the objectives of the Renewable Energy Acquisition Plan. A copy of its RES Implementation Plan, as filed on August 30, 2007, is included as Exhibit 1.

On July 27, 2007, APS held a collaborative forum with a wide group of interested stakeholders as required by Decision No. 69663. In the stakeholder forum, APS presented and discussed the material aspects of the Renewable Energy Acquisition Plan and its estimated energy needs over the next five years, provided an update to the current 2007 Renewable Request for Proposals (RFP), and sought input with respect to presented elements of the RES Implementation Plan. APS also, provided a general description of the technologies bid into the RFP, an overview of the selection process, and a then-anticipated timeline for completion of project selections. The list of attendees is included as Exhibit 2 to this filing and a copy of APS' stakeholder presentation is included as Exhibit 3.

The stakeholder group was also provided information concerning the independent certification of APS' procurement procedures. An independent consultant was engaged by APS to review and certify its competitive procurement procedures and to certify that those procedures were appropriately implemented in the 2007 Renewable RFP. The consultant completed the procedure certification in April 2007, and continues to monitor the Renewable RFP to ensure the certified procedures are applied.

The remainder of the forum was devoted to discussing those elements of the impending RES Implementation Plan in support of the development of the Renewable Energy Acquisition Plan. APS provided an overview of all of the components of the Renewable Energy Acquisition Plan including:

- Anticipated Renewable Energy needs based on APS' plan for complying with the RES
- The Distributed Energy Administration Plan
- Distributed Energy implementation technology solutions
- Distributed Energy marketing
- Commercialization and Integration studies
- RES funding

If you or your staff have any questions about the enclosed information, please call Jeff Johnson at 602-250-2661.

Sincerely,

Barbara Klemstine

BK/eaa

Attachments

CC: Ernest Johnson
Ray Williamson
Brian Bozzo

EXHIBIT 1

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Amended APS RES Implementation Plan 2008 to 2012

August 29, 2007

Arizona Public Service Co.

APS Implementation Plan

2008 to 2012

For The

Renewable Energy Standard

REDACTED VERSION

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1. EXECUTIVE SUMMARY

Arizona Public Service Company ("APS" or "Company") has prepared this Implementation Plan for the five year period, 2008-2012 (the "Plan"), in compliance with the Renewable Energy Standard and Tariff ("RES").[1] The RES Rules require that APS file an annual plan that describes how it intends to comply with the rule requirements for the next five years. In compliance with that provision, APS has prepared this Implementation Plan, which describes the renewable energy resources that may be added during the next five years, the estimated customer funding and tariff amounts required to acquire those resources, and a budget that allocates specific funding. The RES requirement begins at 1.75% of total retail sales in 2008 and requires 10% of the renewable energy to come from distributed energy solutions.

As a separate document, the Company is filing its Distributed Energy Administration Plan ("DEAP"), which incorporates the preliminary recommendations reached by an informal Uniform Credit Purchase Program ("UCPP") working group that was established by Commission Staff during 2006. The DEAP addresses the participation process for a wide range of customers, incentive levels, eligible technologies and system requirements, providing a program that APS believes will encourage customer participation.

APS currently estimates the cost to comply with the RES to be $48 million in 2008 and increasing to $96 million by 2012, with a five year total of $347 million. RES funding is intended to cover the cost of utility scale renewable generation in excess of the cost of conventional resource alternatives, incentive payments for distributed energy resources, marketing expenses, and program implementation and administration costs. The costs for renewable generation are based on APS's most current insights into that market. The costs for distributed energy incentives and the program budget are based on incentives developed as part of the Commission Staff's working group and APS's best estimations of market uptake for the various technologies available to consumers.

Annual increases in the program budget are driven mainly by the annually increasing energy targets. At this time, APS is requesting adjustor funding of $42 million for 2008 (the adjustor collects approximately $10 million in 2008). The requested adjustor amount, along with the $6 million collected in base rates, would total the $48 million of funding needed to meet the requirement.

2. INTRODUCTION

A. Renewable Energy Requirements

APS has prepared this Implementation Plan in 2007 for the five year period 2008-2012 in compliance with the RES, Arizona Administrative Code R14-2-1801 through R14-2-1815. The RES requires that affected utilities satisfy an annual renewable energy requirement by providing a percentage of their electric retail sales from renewable resources. The required percentage for

[1] A.A.C. R14-2-1801 *et. seq.*

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the current implementation period begins at 1.75% in 2008 and increases to 3.50% in 2012.[2] That minimum percentage increases to 15% of the utility's retail sales by the year 2025.[3]

Renewable resources under this rule include "renewable generation" projects which are constructed solely to export their energy production to the utility and distributed energy ("DE"), which is a renewable resource application acquired, installed, and operated by customers on their premises, and which are used to displace the customer's energy consumption.[4] As part of the RES, the energy generated or displaced by the DE is applied towards the percentage of the utility's distributed renewable energy requirement.[5] In both the instance of Renewable Generation and DE, the unit used to track kilowatt hours ("kWh") derived from renewable resources for purposes of compliance with the RES is the Renewable Energy Credit[6] ("REC"), where one kWh equals one REC.

The RES requires regulated utilities to file an Implementation Plan each year for review and approval by the Arizona Corporation Commission ("ACC" or "Commission").[7] The Plan must describe the procurement of renewable energy resources for the next five calendar years that will meet the requirements of the RES.[8] This description must identify the considered technologies, the expected schedule for the resource incorporation on a year by year basis, and a description of the kilowatts ("kW") and kilowatt hours that are expected to be added to the APS portfolio by the incorporation of those resources.[9] The RES provides that costs incurred by the regulated utility consistent with the approved Plan shall be deemed reasonable. Further, the RES provides that implementation of the approved Plan by the utility shall serve to measure the utility's compliance with the RES. Attached in Exhibit 1 is a summary of the APS targets, energy requirements, and program budget.

B. Renewable Generation Challenges and Risks

In developing this Plan, APS has evaluated renewable resources available for procurement in the next one to two years ("the near-term"), as well as those speculated to become available over the remainder of the five year period covered by this Plan and beyond ("the longer-term"). Although there exists uncertainty in the specific details of many of those renewable resources, APS believes it has chosen a strategy that will meet or exceed the minimum renewable resource energy targets identified in the RES.

The first five years of APS's implementation strategy for achieving compliance with RES targets are detailed in this Plan. This Plan and the resulting renewable energy goals do not come

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[2] A.A.C. R14-2-1804(B).
[3] *Id.*
[4] A.A.C. R14-2-1802.B.
[5] A.A.C. R14-2-1805.B.
[6] "Renewable Energy Credit" means the unit created to track kWh derived from an Eligible Renewable Resource of kWh equivalent of Conventional Energy Resource displaced by Distributed Renewable Resources." A.A.C. R14-2-1801.N.
[7] A.A.C. R14-2-1813.A.
[8] A.A.C. R14-2-1813.B.
[9] *Id.*

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without some risk related to meeting the renewable resource targets. Inasmuch as those risks are presently definable and quantifiable, they are identified and discussed in this Plan. Those risks include issues such as: the availability, level and consistency of federal, state and local incentives; availability of renewable energy projects executed by financially and technically sound developers; adequate transmission resources to deliver new resources to APS load; renewable energy projects matching APS' anticipated costs profiles; the timing of new resource availability; and the ability of DE technologies and technology providers to serve the needs of customers.

APS acknowledged the risks identified above and attempted to account for them in its procurement strategy. The timely delivery of energy from renewable resources is critical to APS's compliance with the energy targets, and development of these types of projects typically requires between two to five years. Recent experience across the nation indicates renewable generation projects suffer from high levels of project failure, broadly summarized as the inability to meet contract energy delivery dates. These failures and delays can be attributed to a broad range of issues, but are generally attributed to the immature nature of the renewable resource markets. Published experience with renewable energy projects in California suggests that a minimum overall contract failure rate of 20-30% should generally be expected for large solicitations.[10] APS has attempted to develop an implementation plan which assumes a similar level of project failure rate to that observed in California. As a way to buffer against these risks, APS's experience both with renewable energy projects and with conventional energy technologies suggests that careful project screening can reduce, but not eliminate, some of the risk associated with project failures.

C. Distributed Energy Targets

The RES requires that affected utilities satisfy a percentage of the annual renewable energy requirement through the addition of distributed energy resources. The required percentage for the current implementation period begins at 10% of the 1.75% total requirement in 2008 and increases to 30% of the 3.5% total requirement in 2012.[11] That percentage remains at 30% of the total renewable energy requirement through 2025.

Considerable public discussion has surrounded the DE targets described in the RES. This discussion has centered on questions related to the magnitude of customer interest in DE, the effect of introducing many new distributed technologies, the ability of the technology suppliers and installers to meet the potential customer demand, and, ultimately, the total cost of incentives required to drive the required customer participation to meet RES compliance. The extent of customer participation is the primary driver of DE results and is simply unknown and unknowable at this time. APS's recent experience with the Solar Partners Incentive Program demonstrated that changes in public policy affecting the program (i.e., state and federal tax incentive increases) and changes in program incentives can have dramatic impacts on customer participation, far beyond those anticipated. There is no way to accurately predict whether the

[10] Building a Margin of Safety into Renewable Energy Procurement, KEMA Inc., Jan 2006, CEC-300-2006-004.
[11] A.A.C. R14-2-1805.B.

amount of incentives being offered will motivate customers to participate at the necessary rate. This is particularly germane, because even with availability of significant incentives, customers must still provide significant personal funding in order to have DE systems installed on their homes or businesses. Today, the typical residential distributed photovoltaic system costs about $21,000 to install, attracts about $12,000 in government and utility incentives, and requires a customer investment of about $9,000.

APS recognizes that DE is an important component of the renewable energy goals of the RES, and, as part of this Plan, APS proposes a funding level believed necessary for compliance. APS recognizes that uncertainty exists with respect to the proposed incentive levels and the total number of RECs that they will generate; however, in order to comply with the DE targets, APS believes the funding level is necessary if consumer demand for DE is adequate. The assumptions used to build the DE program budget are based on incentives developed as part of Commission Staff's UCPP working group, market insights from those same meetings, and APS's experience with the Solar Partners Incentive Program. If the DE program assumptions prove to be correct, the first year cost for this component of the RES Implementation Plan is estimated to be approximately $42 million. This amount escalates to approximately $77 million in 2012.

D. Required Program Funding

The Implementation Plan proposed by the Company is estimated to cost a total of $347 million over the five-year period covered by this Plan. This Plan is designed to achieve compliance with the RES requirements. The cost for the first program year (2008) is estimated to be approximately $48 million and escalates to $96 million in 2012, driven mainly by the increasing energy targets. In this implementation plan, APS is requesting an adjustor to recover only the estimated 2008 costs of approximately $48 million, resulting in a $32 million increase over the $16 million currently collected. In each succeeding year, as part of its Implementation Plan, APS will request a reset of the adjustor to collect the estimated costs for the following calendar year. Current estimates for each of those years can be seen in Exhibit 2.

Several of the exhibits contained in this Plan include pricing estimates that have been made by APS in development of the program costs. Some of the pricing included in this Plan is pricing from existing confidential contracts. The price estimates are necessary to allow APS to provide the information sought by the Commission as part of the Implementation Plan. In addition, summary expenditures and energy requirements for generation provided on a year by year basis could be used to infer much of the confidential pricing information. APS believes it is in the best interest of the company and our customers to ensure that future suppliers of renewable resources compete for the right to supply renewable energy without a pre-conceived notion of the pricing assumptions or confidential pricing in this plan. Therefore, APS has submitted a redacted version of that confidential information and will provide Staff the confidential information pursuant to an executed Confidentiality Agreement.

This Plan makes reasonable assumptions concerning renewable energy resources, and, as APS gains more experience with renewable resources, future Plans will account for the realties APS encounters in the actual implementation of the RES.

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3. 2007 APS IMPLEMENTATION PLAN

A. Energy

The RES identifies the minimum annual percentage of a utility's retail sales that must be obtained from renewable resources. The first year target covered by this Plan is the 2008 percentage of 1.75%. The renewable resource targets required to meet APS' targets for each year are detailed in Exhibit 3A. The targets detailed by the RES are described in two categories, renewable generation and distributed energy resources.

Renewable generation is represented by projects that export their energy production to the utility. These projects are typically large-scale facilities that use renewable resources such as wind, solar, geothermal, biomass, and biogas to generate electricity. Energy produced from those resources is delivered through the transmission and distribution systems and, ultimately, to the utility's customers.

Distributed energy resources are represented by technology applications that are physically installed on the customer's property. Those applications are typically specifically designed for the distributed setting. Distributed applications under the RES include a wide range of technologies; today those technologies are most frequently represented by photovoltaic and solar water heating systems. The DE displaces the customer's energy needs. It can be tied to the existing APS distribution system or it can be installed as a remote application, independent of the APS distribution system. As part of this Plan, APS does not plan to install DE at customer's properties; rather, the installation of DE is facilitated by providing customers with financial incentives for the installation of those resources by licensed contractors.

B. Capacity

The RES targets are energy based (kWh) only with no capacity (kW) requirements. However, the Plan utilizes generation capacity assumptions to forecast compliance with the energy targets. When equating energy targets to planned capacity levels, it is important to recognize that the capacity factors for various renewable generation technologies vary significantly. Some technologies such as geothermal and biomass are very predictable and can produce at capacity factors near 80-90%, similar to conventional base load generation. Some renewable generation technologies such as solar are predictable, but have inherently low capacity factors of 15-30%, driven by the daily availability of solar radiation. Other renewable generation technologies such as wind are less predictable on a real time basis. However, wind will generally produce capacity factors in the range of 25-40% annually, depending on the characteristics of the wind resource in a given location.

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The mixture of the technologies employed is critical and the ultimate mixture will dictate the additional capacity required to achieve the energy targets. Exhibit 3B provides the level of capacity for the specific mixture of technologies assumed in this Plan for the coming five years. Exhibit 3B is not intended to be an exact representation of the resources APS intends to acquire, but merely an example of a potential resource mix based on APS' current understanding of the market. The economics of a particular resource or technology will ultimately determine the extent to which any one technology is employed as part of the overall portfolio.

C. Renewable Generation

The design of this Plan is to provide sufficient flexibility to provide the best opportunity to meet or exceed the RES target at a reasonable cost. The Plan provides descriptions of the current projects under contract as well as the expected resource additions over the next five years.

i. Existing Renewable Generation

To date, APS has entered power purchase agreements ("PPA") for renewable generation resources totaling approximately 114 megawatts ("MW") of capacity. APS also owns and operates approximately 6 MW of solar capacity. The composition of the existing portfolio is detailed in Exhibits 3A and 3B.

ii. Renewable Generation Procurement Plan and Process

The energy required to meet the APS targets and the anticipated demand for the Green Power rates in each of the next five years is outlined in Exhibit 1. In general, two to five years is required from the initiation of an RFP to the point at which energy can flow into the APS system from a new renewable generation project. The majority of that time is required for development and construction. Therefore, an RFP started in 2007 would be expected to result in renewable energy that would apply to the renewable resource target no sooner than 2009.

APS projects that it will need energy output from renewable resources in 2008 and beyond, in additional to that which has already been contracted. Accordingly, APS implemented a competitive procurement process in 2007. The competitive procurement process will consist of, but not be limited to, the issuance of RFPs, negotiated bilateral supply contracts, and other competitive solicitations seeking long-term renewable resources. Implementing an effective competitive procurement process will ensure a fair and unbiased procedure that will efficiently incorporate a full range of renewable resources alternatives from the marketplace.

In the evaluation of bids submitted during the competitive procurement process, analysis of proposals will include an analysis of: energy production; capacity value; deliverability; technical characteristics; operational performance; reliability; efficiency; credit; and respondent

experience. The procurement and project selection procedure employed by APS has been documented and certified by an independent auditor as required by the RES.[12]

This Plan attempts to fully acknowledge the reality that PPAs and project development methods will not necessarily conform to required delivery schedules and planned quantities. Renewable generation projects, like other generation projects, may fail to achieve scheduled commercial operation. A recent review of renewable projects in California stated that utilities should expect that 20-30% of renewable contracts experience termination or major delays.[13] Similar project delays or failures could cause APS to fall short of its renewable energy targets. These risks require APS to design and employ contingency measures. The primary tool planned to prevent energy shortfalls resulting from these risks is a procurement goal of 120% of the target energy for three to five years into the future.

iii. Identifying Renewable Generation Requirements

During the five years covered by this Plan, the renewable resource targets increase from 1.75% in 2008 to 3.50% in 2012. In the near-term, this Plan focuses on existing and planned renewable resource projects to meet those targets. This Plan also contemplates that new renewable generation will be contracted and developed during the five year period covered by this Plan. APS has based its program budget and energy procurement on several assumptions. These are discussed below. Details are confidential and have been redacted. Those details are provided to Staff pursuant to an executed Confidentiality Agreement.

1. Costs of Renewable Generation

For purposes of resource and budget planning, the costs of renewable generation are based on the portion of the renewable energy cost which is above the Market Cost of Comparable Conventional Generation.[14] For existing contracts, the percentage above APS's cost for comparable generation was established at the time the contract was signed and the percentage is applied to the total contract cost for the planning year. For future contracts, the price is estimated based on existing renewable generation contracts, recent market experience, and general trends observed in renewable generation project development. These percentages will be re-evaluated during subsequent five year planning periods. All renewable resource costs are described in terms of dollars per megawatt hour ("MWh") above APS's comparable conventional generation. The detailed cost assumptions used to develop the budget for procurement of these resources are included in Exhibits 3C and 3D. Because this information is confidential, it will be provided to Staff pursuant to an executed Confidentiality Agreement.

2. Planned Resource Additions

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[12] A.A.C. R14-2-1812.B.6 "...procedures for choosing Eligible Renewable Energy Resources and a certification from an independent auditor that those procedures are fair and unbiased and have been appropriately applied."

[13] CEC-300-2006-004, Building a "Margin of Safety" into Renewable Energy Procurements: A Review of Experience with Contract Failure. January 2006.

[14] A.A.C. R14-2-1801.K defines this term.

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The annual increases in the renewable targets suggest that renewable generation resources can be developed and procured in increments sized to match annual increases. Making resource additions that specifically match the requirement is unlikely. As such, in some years the renewable generation procured will exceed that specifically targeted. For purposes of this discussion, those additions are referred to as "non-linear additions." The schedule of resource additions provided in Exhibit 3 identifies specific targeted additions of renewable resources. Exhibit 3 contains competitively confidential information that has been redacted from the public version. Those additions are listed as "Targeted Additions." APS incorporated the addition of "generic" projects to mimic the non-linear effect on both energy contribution and program costs. The project additions included in Exhibit 3 were used to simulate the impact to the program budget and to demonstrate impacts to procurement timing.

New renewable generation resources (beyond 2012) are determined based on compliance with the energy target for a given year. When existing resources are inadequate to meet the requirement, APS used a blend of renewable resources to simulate the capacity additions required. The economics of a particular resource or technology will ultimately determine the extent to which it is employed in the portfolio; however, at this early phase of RES planning, APS assumes a divers set of resources and technologies will be employed. The details of these assumptions are included in Exhibit 3.

For each technology, the planning model incorporates an assumed capacity factor. The modeled capacity factors are based on APS's review of technical performance information for each technology, discussions with project developers, and a review of published information related to currently operating commercial renewable resources.

D. Distributed Energy

APS recognizes that DE is an important component of the renewable energy goals of the RES, and, as part of this Plan, APS proposes a funding level it believes necessary for compliance each year to support the distributed generation program. APS recognizes that uncertainty exists with respect to the proposed incentive levels and the total number of RECs that they generate; however, in order to comply with the DE targets, APS believes the proposed funding level is necessary to accommodate required consumer demand for DE.

APS has requested a reset of the adjustor necessary to recover only the 2008 estimate for the DE program, as previously discussed. Increases in the adjustor will be required in future years for APS to meet the DE requirements in the RES. APS believes that adjusting the funding annually allows APS, together with the ACC, to implement a program with a clear understanding of program performance and costs without over collecting funds from customers in the near-term or compromising the overall resource goals of this Plan and the RES.

Commission Staff initiated the UCPP working group described in A.A.C. R14-2-1810 in June 2006, and APS participated in all of the working group efforts. The working group made significant progress towards the development of recommendations to Commission Staff, but a final report has not yet been completed. APS has used the approach developed by the UCPP

working group for the Company's proposed DE incentive program. This working group made considerable progress towards identifying program workflows, technology sensitive incentive structures and levels, and technology specific requirements and limitations. The efforts of the working group provided APS with insight on the anticipated potential contributions from technologies not previously included in APS's DE programs. Planning models, implementation strategies, and budgeting for the DE program were all designed with specific consideration for the insight from the UCPP working group. In addition, APS relied on over six years' experience with the Solar Partners Incentive Program and ongoing dialogue with many industry stakeholders.

i. Anticipated Distributed Energy Program Outcomes

As part of this Plan, APS developed a planning tool to help anticipate DE program outcomes, both from energy and budgetary perspectives. In developing the anticipated program outcomes, a number of assumptions about technologies and customer preferences were required. The assumptions included the anticipated number of projects by technology requesting incentives and the anticipated energy contribution from each DE project. Anticipated energy contribution was described by assumptions on average project size and average project production. The detailed assumptions were required for purposes of budget and planning; they are not intended to reflect allocations, funding caps, or preference for any one technology. The assumptions are detailed in Exhibit 4.

Incentives were drawn from the draft UCPP working group efforts and have been included in the APS Distributed Energy Administration Plan ("DEAP"). The DEAP is a separate document submitted in conjunction with the Implementation Plan in general compliance with A.C.C. R14-2-1810.B. The DEAP, generally described below, details different incentive types for use in the DE program. For planning purposes, assumptions about customer preference for the variety of incentive alternative were required. Planning assumptions are also detailed in Exhibit 4A.

APS's proposed DE budget, combined with the planning assumptions, results in specific outcomes. (Exhibits 4B and 4C). The actual results of program implementation are likely to differ from those anticipated by APS's planning efforts as customers learn more about the variety of technologies and applications available as a result of APS's program marketing, advertising, and partnership development efforts.

ii. Key Tenets of the Proposed Distributed Energy Administration Plan

APS's distributed energy program is detailed in the DEAP. Below follow several key tenets of APS's program as described in the proposed DEAP.

1. Administration

Project funding is not guaranteed until a reservation confirmation is received for each project from APS. To receive a reservation and an incentive, applicants must follow the established reservation, installation, and inspection procedures.

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2. Equipment and Installation Requirements

Systems will be required to adhere to generally accepted industry standards, federal, state and local codes, all applicable regulatory requirements, and manufacturer recommendations for installation and operation. Systems must be installed by an Arizona licensed contractor holding an active certification for the technology being installed.

3. Incentives

Incentives are designed to defray some of the costs of a system designed to offset a typical load of a customer. Systems qualifying for DE incentives cannot qualify for other utility incentives.

Residential – Customers for residential incentives can apply for a one-time payment based on the DE system's capacity or based on the first year estimated savings provided by the DE system, dependant on the technology application. This type of incentive is referred to as an Up-Front Incentive ("UFI").

Non-Residential – Non-residential customers will either receive a UFI or a production incentive, which is paid over time. Projects receiving production-based incentives ("PBI") are paid based on system energy output rather than on system capacity. Projects with a total incentive value of $75,000 or less (calculated as the present value of the total of incentive payments) will receive one-time capacity based incentives; all others will receive incentives based on production.

4. Market-Driven Projects

Projects that fall outside of the standard administrative, equipment, or incentive requirements for DEAP projects or projects that are solicited by APS to achieve specific program goals may be eligible for incentives as market-driven projects. These projects must be comparable to conforming projects in financial efficiency to be considered for incentives.

5. Customer Self-Direct

Eligible customers[15] are required to declare the amount of the self-directed funding[16] requested at least 60 days before the implementation plan is filed for the upcoming year. These projects must be comparable to conforming projects in financial efficiency to be considered for incentives. The amount of funds allocated to customer self-directed projects will be disclosed in this Plan for the next program year.

[15] A.A.C. R14-2-1801(H) – "Eligible Customer mean an entity that pays Tariff funds of at least $25,000 annually for any number of related accounts or services within an Affected Utility's service area."
[16] A.A.C. R14-2-1809.

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iii. Distributed Energy Incentive Budgets

The proposed DE incentive budget for the five year planning window is described in Exhibit 4B. The incentive budget allocation is designed to result in half of the distributed energy to be from residential installations and half from non-residential.[17] Annual increases in program budget are designed to accommodate both an increase in the DE energy target and to account for the increasing levels of commitment to PBIs, which are used primarily for non-residential DE resources. The incentive matrices incorporated as part of the DEAP describe incentive reductions every two years of the program. Those planned reductions were designed by the UCPP working group in an attempt to reflect the anticipation that DE technologies will decline in cost as market penetration and product availability increase. Three specific allocations are described in Exhibit 4B. They include: non-residential UFIs; non-residential PBIs; and residential UFIs.

The DEAP describes potential funding for customer self-directed projects. As part of the DEAP, a budgetary earmark is required to fund projects meeting the criteria of customer self-directed projects. To date, no funds have been paid to APS as part of the RES, and, therefore, no projects currently qualify for customer self-directed funds. As a result, in this initial Plan, no allocation has been established.[18]

As was previously described in this Plan, the annual funding level for DE incentives was established based on the estimates of the energy needed for compliance, anticipated consumer demand, project sales and development time frames, variations in the levels of technology maturity, and availability of equipment for installation. In the event that funds collected for use in the DE incentive program are not fully subscribed in a program year, those funds will be applied to the next program year and allocated to achieve the required energy outcome between residential and non-residential projects.

iv. Marketing, Advertising and Partnership Development

To foster consumer awareness and interest in the DE incentive program, and in response to Commission direction, APS proposes to employ a multifaceted marketing campaign. The campaign will be designed to address three primary goals, all aimed at increasing participation in DE programs. Those goals are: 1) to create heightened awareness of APS's DE incentive programs, both for customers and stakeholders; 2) to create messages that deliver sufficient motivation to make renewable distributed energy a compelling product for both individual consumers and businesses in APS's service territory; and 3) to identify APS's DE incentive programs as a customer choice to address the growing energy needs and environmental concerns of Arizona.

The objectives of all actions under the marketing campaign will be to motivate APS customers to "think" about renewable DE, to "believe" in the ability of DE to support both individual and

[17] A.A.C. R14-2-1805.D.
[18] A.A.C. R14-2-1809.A.

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statewide renewable resource goals and to "act" to use the DE incentives. To accomplish these objectives, the marketing campaign will bring together a combination of pointed and motivating messaging, identify critical program partners, motivate partnership development, drive community outreach, and employ an effective and convincing use of media, both placed and earned.

The marketing campaign will include a variety of important strategies to accomplish the program goals. A few of the key strategies will include:

- Implementation of a research program that will identify the most effective messages to overcome purchase barriers for residential customers, builders, and commercial customers.
- Creation of a campaign for DE energy that motivates Arizonans to take a new/second look at the benefits and reliability of DE technologies.
- Utilization of targeted media (both placed and earned) to raise visibility of renewable DE alternatives.
- Creation of strategic alliances that allow for maximum exposure of the APS DE message to specifically targeted audiences.
- Use APS website and customer communications vehicles to deliver DE messages.
- Creation of sales tools to support both residential and non-residential customer acquisition.

In developing a budget for the DE marketing campaign, APS consulted with its nationally recognized renewable resource consulting firm, reviewed available data for customer program marketing budgets among other states and utilities, and considered the level of anticipated effort to create consumer demand based on the breadth of available technologies and the proposed DE incentive budget. The proposed annual budget is detailed in Exhibit 2.

E. Implementation and Administration

In developing both strategy and a budget for implementation of the RES, a logical separation was created between those elements required to support the renewable generation portion of the program and the DE portion of the program. Renewable generation involves expertise in utility scale renewable generation technologies, competitive procurement and evaluation processes, project siting, utility integration, transmission and distribution related issue, complex contract negotiations, and contract management. The DE program is a mass market program; involves thousands of individual interactions requiring customer communication; interconnections; inspections; customer billing; and a sophisticated system to monitor REC production. Of course, certain resources are used to support both portions of the RES and they are characterized as such in the descriptions that follow.

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i. Resources Required for the Renewable Generation Program

The renewable generation program requires knowledge area experts to identify those aspects of renewable generation procurement, engineering, and market analysis that are unique from those same areas in conventional energy operation and to coordinate with the impacted operational areas of APS to seamlessly integrate renewable resource management into APS's standard business practices. The knowledge area experts comprising the renewable generation administrative team include the personnel necessary to manage the program, which includes establishing policies and procedures, procuring renewable generation, handling contract administration and construction management, managing benchmarking and resource integration studies, and performing program monitoring and compliance reporting.

Many APS personnel support the program, but are not part of the administrative team, and those employees are not included in the program costs. These personnel are considered "non-incremental" and are required to support the general operations of the Company and have responsibilities that are not directly related to the non-distributed program. This includes, but is not limited to, regulation and pricing, accounting, legal, contract administration, contract settlement, transmission planning, power and gas marketing, and resource planning.

ii. Resources Required for the Distributed Energy Program

The implementation strategy for the DE program was developed with the following targets:

- Developing an accurate, efficient and customer friendly process.
- Integrating the program processes into the general business operations.
- Creating a scalable process that responds to adjustments in the volume of program participation.
- Supporting the strategic marketing efforts of the program.

To accomplish the objectives set forth requires a significant investment in program implementation. The DE program requires a significant number of individual transactions and each transaction impacts numerous parts of APS business infrastructure. As such, implementation costs for the DE program are significant.

1. Program Resources

The implementation team is comprised of the resources necessary to execute the DE incentive program. This includes the fixed payroll personnel required to administer the reservation and interconnection applications and agreements, review system design for conformance with DEAP and interconnection requirements, process incentive payments, answer customer and installer questions about the program, and perform field inspections; and also includes the variable payroll personnel required to program and install bi-directional and performance meters, tag utility equipment to identify potential backfeed sources, and provide billing support to partial requirements customers. This also includes the personnel required to manage the execution of the program, develop and execute the marketing and advertising programs, and provide ongoing

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program monitoring and compliance reporting. The number of implementation team members required is proportional to the number of program participants.

There are also resources supporting the program that are neither part of the administrative nor the implementation teams. These personnel are considered "non-incremental" and are required to support the general operations of the utility and have responsibilities that are not directly related to the distributed program. This includes, but is not limited to, regulation and pricing, accounting, legal, contract administration, and meter reading.

2. Material Costs

Measuring the actual number of kWh returned to the grid by DE resources requires the use of a bi-directional meter rather than a standard utility meter. The incremental cost charged to the RES is the difference in cost between the bi-directional meter and the standard utility meter.

For compliance verification and program evaluation purposes, the DEAP proposes to capture an annual meter read for all DE systems generating electricity. APS believes that customers will also be interested in the ability to track total kWh generated by their system. To facilitate both the meter read capture requirement and to help customers track the kWh production by the DE system, APS plans to install and read the system meter for all participants in the program. The only costs charged to the RES are those costs associated with providing the second meter to record system production.

There are also incidental material costs associated with the program, including, but not limited to, system locks, tags, inspection tools and transportation for inspection personnel.

APS may also install an interval recording meter on a sampling of sites that will be used by load research to conduct studies on the coincidence of solar output vs. APS system load. The only material cost charged to the Program will be the incremental costs of the interval recording meter.

3. Technological Improvements Required

The process flow to effectively and efficiently implement the DE incentive program requires integration with existing systems, including customer billing, the APS.com website, program and operations databases, accounting systems, and dispatch and scheduling tools. This investment is required to ensure integrity and support the scale of the program as it is described in the Plan. The technology tools to support the distributed incentive program that APS will develop and integrate into existing systems include:

- An agreement processing and workflow management tool — This tool will provide an interface through the APS.com website to allow customers and vendors to complete and submit all program forms and agreements on-line, with data to be stored in a central database. This tool will include an integrated workflow management to provide status tracking, work orders, and

scheduling. The tool will also integrate into all major systems, including the billing system, and the operations and accounting databases.

- Automated customer billing — The readings from the bi-directional meter will be integrated into the APS billing system. The credit for the energy sold back to the APS system will be calculated within the billing system and will appear on the customer's standard APS bill.

- Performance information tools — The readings from the system meter will be integrated into the APS billing system. Those readings will be displayed on the customer's regular billing statement. A tool will also be available to assist the customer in projecting energy dollar savings based on kWh output from a "typical" DE system.

- Reporting and maintenance — Data capture necessary for ongoing program monitoring and compliance reporting will be facilitated by developing standard reports and a reporting tool for ad hoc queries.

F. Renewable Technology Commercialization and Integration

APS proposes a budget allocation for studies related to commercialization and integration of renewable resources. The purpose of this budget allocation is to enhance and accelerate the development, deployment, commercialization, and utilization of renewable resources for the benefit of APS customers.

APS will prioritize commercialization and integration studies to help meet the accelerated RES goals for renewable resources. As part of APS's long standing commitment to renewable resources, several studies related to commercialization and integration are already underway. Those studies and ongoing experience with renewable resources will help identify additional study subjects necessary to achieve program goals.

Activities undertaken as part of this program may be supported either by APS solely, or in partnership with other organizations and entities including private industry, public research institutions, and government laboratories. In planning and funding these activities, APS intends to take full advantage of opportunities to leverage state and federal research and development efforts and supporting funding opportunities. Specifically, APS will strive to increase coordination efforts with the U.S. Department of Energy ("DOE"), the Arizona Department of Commerce Energy Office, and the national laboratories to realize greater investment of federal research funds in Arizona and specifically APS service territory. APS also intends to coordinate more closely with Arizona universities to better utilize those resources.

Studies presently underway that are currently funded by the EPS include:

- Arizona Renewable Resource Study — Jointly funded by APS, SRP, and TEP, the study represents an independent analysis of potential renewable

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resources in Arizona. The analysis is being conducted by leading energy engineering consulting group Black and Veatch and will effectively establish a baseline understanding of renewable energy resources presently perceived as available within the Arizona. In addition, the study will define renewable energy technology applications, associated cost structures, as well as identify renewable energy market opportunities, which should encourage the development of renewable energy projects in Arizona.

- APS Wind Integration Study — This study drives extensive research that leverages available wind data within Arizona and evaluates the potential for incorporating utility scale wind into APS's system. The study will then specifically evaluate the costs that result from integrating wind into the APS system.

- Joint Utility Market Study — This joint effort will result in a statewide market study evaluating consumer receptiveness to the installation of distributed renewable energy equipment, particularly photovoltaic. Participants include APS, SRP, TEP and the Arizona Cooperative Utilities.

- Concentrating Solar Power Project Studies — APS, in conjunction with several regional utilities, has formed a Joint Development Group ("JDG") to explore the possibility of issuing a joint RFP for energy from a large-scale (250MW) solar plant. This effort is intended to provide project developers with energy and capacity levels large enough to drive cost effective economics into the development of solar resources in an attempt make solar generation more cost competitive with non-solar resources. The efforts of the JDG will require investment in studies related to project siting and specialized support for the development of an RFP.

In determining whether to fund new studies related to commercialization and integration, APS will consider three key functional areas:

- Renewable technologies and available resources — These include studies of the attributes, characteristics, and costs of renewable energy technologies and the availability and viability of renewable energy resources in the state of Arizona and the western United States. Specifically, APS believes it is valuable to explore geothermal resources, monitoring and forecast wind resources, evaluate attributes specific to solar sites for development, and investigate and field monitor small scale hydropower opportunities.

- Transmission and System Integration impacts — These studies would be designed to provide APS with a better understanding of the operational impacts, costs of integration, and for the identification of opportunities with renewable energy resources in the APS generation, transmission and distribution systems. APS recognizes the critical importance of transmission

in the success of the expansion of renewable generation. Any significant increase in renewable generation must be integrated into the long-term planning for transmission to be successful.

- Distribution system impacts — These studies will examine the impacts of distributed energy resources on the power distribution system. Specific areas of study would include impacts on the general distribution system, design and construction, operations and maintenance, safety, power quality, and load forecasting.

4. COSTS OF PROGRAM IMPLEMENTATION

The cost of the APS Implementation Plan is comprised of two key cost segments, renewable generation and distributed energy. A summary of the costs of those segments and the major components for each segment is included in Exhibit 2. As seen in the Exhibit, APS currently estimates the cost to comply with the RES to range between $48 million in 2008 to $96 million in 2012, with a 5 year total of $347 million. The annual increases are driven mainly by the annually increasing energy targets.

RES funding is intended to cover the cost of utility scale renewable generation in excess of the cost of conventional resource alternatives, incentive payments for distributed energy resources, marketing expenses, and program implementation and administration costs. The costs for renewable generation are based on APS's most current insights into that market. The costs for distributed energy incentives and the program budget are based on incentives developed as part of the Commission Staff's working group and APS's best estimations of market uptake for the various technologies available to consumers.

At this time, APS is only requesting adjustor funding of $42 million for 2008 (the current EPS adjustor would generate approximately $10 million in 2008). The requested adjustor amount, along with the $6 million already included in base rates, would total the $48 million of funding needed to meet the requirement. APS intends to request additional funding in each successive year for the following calendar year's estimated cost. In other words, in 2008 APS will request funding for the 2009 calendar year as part of its 2008 Implementation Plan and so on. The estimates contained in Exhibit 2 would be updated each year to determine the necessary level of funding from customers.

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Exhibit 1

APS RES Program Summary

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Exhibit 1 – APS RES Program Summary

Exhibit 1 outlines the annual APS renewable energy targets by renewable generation and distributed energy, anticipated needs, and summarizes the proposed budget.

Exhibit 1: APS RES Program Summary

APS RES Targets	2008	2009	2010	2011	2012
APS Estimated Retail Sales (MWh)	29,496,411	30,590,443	31,598,208	32,608,199	33,636,828
APS RES Target - % of Retail Sales	1.75%	2.00%	2.50%	3.00%	3.50%
APS RES Target (MWh)	**516,187**	**611,809**	**789,955**	**978,246**	**1,177,289**

Renewable Generation (MWh)	2008	2009	2010	2011	2012
Renewable Generation % of RES Target	90%	85%	80%	75%	70%
RES Generation Target	464,568	520,038	631,964	733,684	824,102
Existing Generation Owned/Contracted	454,162	496,215	496,215	496,215	496,215
Additional/Banked Generation Needed for RES	**10,407**	**23,823**	**135,749**	**237,470**	**327,887**
Estimated Green Power Sales [1]	102,000	120,000	123,000	126,075	129,227
Total Renewable Generation Needed	**112,407**	**143,823**	**258,749**	**363,545**	**457,114**

Distributed Energy (MWh)	2008	2009	2010	2011	2012
Distributed Energy % of RES Target	10%	15%	20%	25%	30%
Distributed Energy Target	51,619	91,771	157,991	244,561	353,187
Estimated Existing Distributed Energy [2]	14,034	51,619	91,771	157,991	244,561
Incremental Distributed Energy Needed	**37,584**	**40,153**	**66,220**	**86,570**	**108,625**

APS RES Budget Summary ($ MM)	2008	2009	2010	2011	2012
Total Renewable Generation [3]	$ 5.9	$ 12.6	$ 12.8	$ 12.8	$ 19.0
Total Distributed Energy	$ 42.3	$ 39.9	$ 55.0	$ 70.1	$ 76.7
Total Program Budget	**$ 48.2**	**$ 52.5**	**$ 67.8**	**$ 82.9**	**$ 95.7**

Notes:

(1) The Green Power (Rate Schedules GPS-1 and GPS-2) is included only for procurement purposes. APS intends to procure enough energy to achieve RES compliance and Green Power purchased by customers. The Green Power sold to customers will not be counted towards RES compliance and the cost of those resources is not included in the Renewable Generation budget.

(2) For 2008 the Estimated Existing Distributed Energy is assumed to be the estimated DE at the end of 2007. For the remaining years it is assumed APS achieves full compliance with the DE target.

(3) The total cost for Renewable Generation includes the cost for Existing Contracts as well as Targeted Additions as described in Exhibit 3A.

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Exhibit 2

RES Budget Summary

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Exhibit 2 – APS RES Budget Summary

Exhibit 2 details the APS RES Program proposed budget for 2008 to 2012 by line item for both Renewable Generation and Distributed Energy.

Exhibit 2: APS RES Budget Summary ($ MM)

	2008	2009	2010	2011	2012	2008-2012 Total
Renewable Generation:						
Energy Purchase	$ 5.3	$ 12.2	$ 12.3	$ 12.4	$ 18.6	$ 60.8
Administration	0.7	0.7	0.8	0.8	0.8	3.8
Implementation	0.4	0.4	0.4	0.4	0.4	2.0
Commercialization & Integration	0.5	0.5	0.5	0.5	0.5	2.5
Renewable Generation - Subtotal	**6.9**	**13.8**	**14.0**	**14.1**	**20.3**	**69.1**
Estimated Green Power Revenue	(1.0)	(1.2)	(1.2)	(1.3)	(1.3)	(6.0)
Renewable Generation - RES	**$ 5.9**	**$ 12.6**	**$ 12.8**	**$ 12.8**	**$ 19.0**	**$ 63.1**
Distributed Energy:						
Incentives	$ 28.7	$ 29.6	$ 44.1	$ 58.4	$ 64.2	$ 224.9
Customer Self Directed [(1)]	-	-	-	-	-	-
Administration	1.6	1.6	1.7	1.7	1.8	8.4
Implementation	5.2	3.1	4.0	4.8	5.8	22.9
Marketing & Outreach	6.3	5.1	4.7	4.7	4.4	25.2
Commercialization & Integration	0.5	0.5	0.5	0.5	0.5	2.5
Distributed Energy - Subtotal	**$ 42.3**	**$ 39.9**	**$ 55.0**	**$ 70.1**	**$ 76.7**	**$ 283.9**
TOTAL	**$ 48.2**	**$ 52.5**	**$ 67.8**	**$ 82.9**	**$ 95.7**	**$ 347.0**

Notes:

(1) Customer Self-Directed is a subset of the total Distributed Energy Incentive budget. As discussed in the Implementation Plan no customers are eligible or have requested self-direction at this point and therefore no allocation has been made.

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Exhibit 3

APS Renewable Generation

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Exhibit 3 – APS Renewable Energy Projects and Estimated Cost

Exhibit 3 provides details of the APS renewable energy program. The following sections are included.

1. Expected energy contribution from existing and planned renewable generation.
2. Capacity for the existing and planned renewable generation.
3. Estimated cost per MWh above comparable conventional generation for existing contracts and planned projects.
4. Estimated total annual cost above comparable conventional generation for each of the existing and planned projects.
5. Renewable generation procurement targets.

In addition to the items discussed above, several assumptions were used to develop the APS Implementation Plan. These assumptions are discussed below.

New Capacity Assumptions

Renewable Generation Capacity Addition*

- 275,940 MWh / annually, 90 MW of Wind Capacity – January 2009
- 275,940 MWh / annually, 90 MW of Wind Capacity – January 2012

* The actual technology and capacity added any year will be driven the best value alternative resulting from market procurement efforts.

Exhibit 3A: APS Existing and Planned Generation (MWh)

	2008	2009	2010	2011	2012	2008-2012 Total
Existing Contracts:						
APS Solar PV	9,470	9,470	9,470	9,470	9,470	47,348
Saguaro Solar	2,015	2,015	2,015	2,015	2,015	10,074
CE Turbo (Geothermal)	78,174	78,174	78,174	78,174	78,174	390,870
Aragonne Mesa (Wind)	269,239	269,239	269,239	269,239	269,239	1,346,193
27th Ave Landfill (Biomass)	-	23,000	23,000	23,000	23,000	92,000
Snowflake White Mountain Power (Biomass)	95,265	114,318	114,318	114,318	114,318	552,537
Total Energy - Contracted Projects	**454,162**	**496,215**	**496,215**	**496,215**	**496,215**	**2,439,022**
Targeted Additions:						
Project 1 (Shown as Wind capacity)[1]	-	275,940	275,940	275,940	275,940	1,103,760
Project 2 (Shown as Wind capacity)[1]	-	-	-	-	275,940	275,940
Total Energy - Targeted Additions	**-**	**275,940**	**275,940**	**275,940**	**551,880**	**1,379,700**
Total Generation [2]	**454,162**	**772,155**	**772,155**	**772,155**	**1,048,095**	**3,818,722**

Notes:

1) The actual technology, energy, and capacity under contract will be primarily driven by the least cost and best fit project option resulting from market procurement effort.
2) APS intends to use RES eligible banked energy to fill any yearly shortfalls. It is currently estimated that bank will be 360,000 MWh at the end of 2007.

Exhibit 3B: APS Existing and Planned Generation Capacity (MW)

	2008	2009	2010	2011	2012
Existing Contracts:					
APS Solar PV	5	5	5	5	5
Saguaro Solar	1	1	1	1	1
CE Turbo (Geothermal)	10	10	10	10	10
Aragonne Mesa (Wind)	90	90	90	90	90
27th Ave Landfill (Biomass)	-	3	3	3	3
Snowflake White Mountain Power (Biomass)	15	15	15	15	15
Total Energy - Contracted Projects	**120**	**123**	**123**	**123**	**123**
Targeted Additions:					
Project 1 (Shown as Wind capacity)[1]	-	90	90	90	90
Project 2 (Shown as Wind capacity)[1]	-	-	-	-	90
Total Energy - Targeted Additions	**-**	**90**	**90**	**90**	**180**
Total Generation	**120**	**213**	**213**	**213**	**303**

Notes:

1) The actual technology, energy, and capacity under contract will be primarily driven by the least cost and best fit project option resulting from market procurement effort.

Exhibit 3C: APS Cost Above Conventional Generation ($ MM)

	2008	2009	2010	2011	2012
Existing Contracts:					
CE Turbo (Geothermal)	[redacted]				
Aragonne Mesa (Wind)					
27th Ave Landfill (Biomass)					
Snowflake White Mountain Power (Biomass)					
Total Energy - Contracted Projects					
Targeted Additions:					
Project 1 (Shown as Wind capacity)[1]					
Project 2 (Shown as Wind capacity)[1]					
Total Energy - Targeted Additions					
Total Generation	$ 5.3	$ 12.2	$ 12.3	$ 12.4	$ 18.6

Notes:

1) The actual technology, energy, and capacity under contract will be primarily driven by the least cost and best fit project option resulting from market procurement effort.

Exhibit 3D: APS Cost per MWh Above Conventional Generation ($/MWh)

	2008	2009	2010	2011	2012
Existing Contracts:					
CE Turbo (Geothermal)	[redacted]				
Aragonne Mesa (Wind)					
27th Ave Landfill (Biomass)					
Snowflake White Mountain Power (Biomass)					
Targeted Additions:					
Project 1 (Shown as Wind capacity)[1]	[redacted]				
Project 2 (Shown as Wind capacity)[1]					

Notes:

1) The actual technology, energy, and capacity under contract will be primarily driven by the least cost and best fit project option resulting from market procurement effort.

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Exhibit 4

APS Distributed Energy

Annual Budget
&
Projected Program Outcomes

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Exhibit 4 - APS Distributed Energy Annual Budget & Projected Program Outcomes

Exhibit 4 details the annual budget and projected program of the APS DE program. The program outcomes are driven by the assumptions detailed in Exhibit 4. While the results included in the exhibit are the best estimates provided by APS, the actual results will likely vary based on customer participation, selection of specific technologies, and actual average project size.

The following documents are provided in this exhibit.

1. Customer participation assumptions used to estimate the program energy and capacity contribution.
2. DE program budget and allocations.
3. The projected program outcomes by energy, capacity, and number of installations.
4. The projected program results by technology.

Exhibit 4A: APS Distributed Energy Program Assumptions and Planning Inputs

	Residential Only (Y/N)	Non-Res. Only (Y/N)	Projects (#/1000)	Average Size (kW)	Capacity (kW)	Capacity Factor (hrs/year)	Capacity Factor (%)	Production (kWH)	Residential Contribution (%)	Non-Res. Contribution (%)	Percent UFI (%)	Percent PBI (%)
BIOMASS/BIOGAS (electric)	N	Y	2	80	160	6,132	70%	981,120	0%	4%	0%	100%
BIOGAS/BIOMASS - CHP (electric)	N	Y	4	166	664	6,132	70%	4,071,648	0%	15%	0%	100%
BIOGAS/BIOMASS - CHP (thermal)	N	Y	4	333	1,332	6,132	70%	8,167,824	0%	30%	0%	100%
BIOMASS/BIOGAS (thermal)	N	Y	9	100	900	3,504	40%	3,153,600	0%	12%	0%	100%
BIOMASS/BIOGAS (cooling)	N	Y	0	50	0	3,504	40%	0	0%	0%	0%	100%
NON-RESIDENTIAL DAYLIGHTING[1]	N	Y	90	50,000	4,500,000	NA	NA	4,500,000	0%	16%	100%	0%
	N										100%	0%
FUEL CELLS	N										100%	0%
GEOTHERMAL - (electric)	N	Y	0	1,000	0	7,008	80%	0	0%	0%	100%	0%
GEOTHERMAL - (thermal)	N	Y	0	1,000	0	7,008	80%	0	0%	0%	100%	0%
	N										100%	0%
HYDROELECTRIC	N										100%	0%
NON-RESIDENTIAL PV - small	N	Y	20	3.0	60	1,489	17%	89,352	0%	0%	100%	0%
SMALL WIND (off-grid)	Y	N	10	4.5	45	2,190	25%	98,550	4%	0%	100%	0%
SOLAR ELECTRIC:												
RESIDENTIAL (GRID-TIED)	Y	N	200	3	600	1,489	17%	893,520	40%	0%	100%	0%
NON-RESIDENTIAL (GRID-TIED)	N	Y	50	50	2,500	1,577	18%	3,942,000	0%	14%	0%	100%
RESIDENTIAL (OFF-GRID)	Y	N	15	2	30	1,489	17%	44,676	2%	0%	100%	0%
NON-RESIDENTIAL (OFF-GRID)	N	Y	5	5	25	1,489	17%	37,230	0%	0%	0%	100%
SOLAR SPACE COOLING	N	Y	1	200	200	1,621	19%	324,120	0%	1%	0%	100%
SOLAR WATER HEATING / SPACE HEATING[1]	N	Y	10	160,000	1,600,000	NA	NA	1,600,000	0%	6%	0%	100%
SMALL SOLAR WATER HEATING[1]	Y	N	575	2,050	1,178,750	NA	NA	1,178,750	53%	0%	100%	0%
NON-RESIDENTIAL POOL HEATING[1]	N	Y	5	100,000	500,000	NA	NA	500,000	0%	2%	0%	100%

1) System capacity and size is depicted in kWh as these items are not electrical generators

Exhibit 4B: APS Distributed Energy Projected Program Outcomes

	2008	2009	2010	2011	2012
Annual Program Cost ($000s)					
Residential UFI	26,055	25,682	38,119	49,833	53,230
Residential PBI	-	-	-	-	-
Sub-Total Residential	*26,055*	*25,682*	*38,119*	*49,833*	*53,230*
Non-Residential UFI	661	770	1,143	1,495	1,567
Non-Residential PBI	979	2,122	3,815	6,028	8,392
Sub-Total Non-Residential	*1,640*	*2,892*	*4,958*	*7,523*	*9,959*
Total Residential and Non-Residential	**27,695**	**28,573**	**43,077**	**57,356**	**63,189**
UFI	26,715	26,452	39,262	51,328	54,797
PBI	979	2,122	3,815	6,028	8,392
Existing PBI Commitments	1,000	1,000	1,000	1,000	1,000
Total UFI & PBI	**28,695**	**29,573**	**44,077**	**58,356**	**64,189**
Annual Energy Production (MWHs)					
Residential	*25,809*	*45,886*	*78,996*	*122,281*	*176,593*
Non-Residential	*25,809*	*45,886*	*78,996*	*122,281*	*176,593*
Total Residential and Non-Residential	**51,619**	**91,771**	**157,991**	**244,561**	**353,187**
UFI	30,138	53,581	92,243	142,787	206,208
PBI	21,481	38,191	65,748	101,775	146,979
Total UFI & PBI	**51,619**	**91,771**	**157,991**	**244,561**	**353,187**
Incremental Installed Capacity (kWs)					
Residential UFI	6,206	6,117	10,088	13,188	16,548
Residential PBI	-	-	-	-	-
Sub-Total Residential	*6,206*	*6,117*	*10,088*	*13,188*	*16,548*
Non-Residential UFI	38	44	73	95	119
Non-Residential PBI	3,637	4,241	6,994	9,144	11,473
Sub-Total Non-Residential	**3,675**	**4,285**	**7,067**	**9,238**	**11,592**
Total Residential and Non-Residential	9,880	10,402	17,154	22,426	28,140
Cumulative Total					
Residential	7,863	13,980	24,068	37,256	53,803
Non-Residential	5,509	9,794	16,860	26,099	37,691
Total Residential and Non-residential	13,372	23,774	40,928	63,354	91,494
Incremental Number of Installations					
Residential UFI	7,355	7,249	11,956	15,630	19,612
Residential PBI	-	-	-	-	-
Sub-Total Residential	*7,355*	*7,249*	*11,956*	*15,630*	*19,612*
Non-Residential UFI	69	81	133	174	218
Non-Residential PBI	57	66	109	142	179
Sub-Total Non-Residential	*126*	*147*	*242*	*316*	*397*
Total Residential and Non-Residential	**7,481**	**7,396**	**12,198**	**15,946**	**20,009**
Cumulative Total					
Residential	9,320	16,569	28,525	44,155	63,767
Non-Residential	189	335	577	894	1,291
Cumulative Installed Capacity (kWs)					
Residential UFI	7,863	13,980	24,068	37,256	53,803
Residential PBI	-	-	-	-	-
Sub-Total Residential	*7,863*	*13,980*	*24,068*	*37,256*	*53,803*
Non-Residential UFI	57	101	173	268	387
Non-Residential PBI	5,452	9,693	16,687	25,831	37,304
Sub-Total Non-Residential	*5,509*	*9,794*	*16,860*	*26,099*	*37,691*
Total Residential and Non-Residential	**13,372**	**23,774**	**40,928**	**63,354**	**91,494**
UFI	7,920	14,081	24,241	37,524	54,190
PBI	5,452	9,693	16,687	25,831	37,304
Total UFI & PBI	**13,372**	**23,774**	**40,928**	**63,354**	**91,494**
Cumulative Number of Installations					
Residential UFI	9,320	16,569	28,525	44,155	63,767
Residential PBI	-	-	-	-	-
Sub-Total Residential	*9,320*	*16,569*	*28,525*	*44,155*	*63,767*
Non-Residential UFI	104	184	318	492	710
Non-Residential PBI	*85*	*151*	*260*	*402*	*581*
Sub-Total Non-Residential	*189*	*335*	*577*	*894*	*1,291*
Total Residential and Non-Residential	**9,508**	**16,904**	**29,102**	**45,048**	**65,057**
UFI	9,423	16,753	28,842	44,646	64,476
PBI	85	151	260	402	581
Total UFI & PBI	**9,508**	**16,904**	**29,102**	**45,048**	**65,057**

Exhibit 4C: APS Distributed Energy Projected Program Outcomes by Technology

	2008			2009			2010			2011			2012		
	# Installs	MWHs	kW	# Installs	MWHs	kW	# Installs	MWHs	kW	# Installs	MWHs	kW	# Installs	MWHs	kW
BIOMASS/BIOGAS (electric)	1.3	617	101	1.5	720	117	2.4	1,187	194	3.2	1,552	253	4.0	1,947	318
BIOGAS/BIOMASS - CHP (electric)	2.5	2,561	418	2.9	2,987	487	4.8	4,926	803	6.3	6,440	1,050	7.9	8,081	1,318
BIOGAS/BIOMASS - CHP (thermal)	2.5	5,138	838	2.9	5,992	977	4.8	9,882	1,612	6.3	12,919	2,107	7.9	16,210	2,643
BIOMASS/BIOGAS (thermal)	5.7	1,984	566	6.6	2,313	660	10.9	3,815	1,089	14.2	4,988	1,423	17.9	6,259	1,786
BIOMASS/BIOGAS (cooling)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NON-RESIDENTIAL DAYLIGHTING [1]	56.6	2,831	NA	66.0	3,301	NA	108.9	5,444	NA	142.3	7,117	NA	178.6	8,931	NA
FUEL CELLS															
GEOTHERMAL - (electric)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GEOTHERMAL - (thermal)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HYDROELECTRIC															
NON-RESIDENTIAL PV - small	12.6	56	38	14.7	66	44	24.2	108	73	31.6	141	95	39.7	177	119
SMALL WIND (off-grid)	91.9	906	414	90.6	893	408	149.4	1,473	673	195.4	1,925	879	245.1	2,416	1,103
SOLAR ELECTRIC:															
RESIDENTIAL (GRID-TIED)	1,838.7	8,215	5,516	1,812.4	8,097	5,437	2,988.9	13,353	8,967	3,907.5	17,457	11,722	4,903.0	21,905	14,709
NON-RESIDENTIAL (GRID-TIED)	31.5	2,480	1,573	36.7	2,892	1,834	60.5	4,769	3,025	79.1	6,235	3,954	99.2	7,823	4,962
RESIDENTIAL (OFF-GRID)	137.9	411	276	135.9	405	272	224.2	668	448	293.1	873	586	367.7	1,095	735
NON-RESIDENTIAL (OFF-GRID)	3.1	23	16	3.7	27	18	6.0	45	30	7.9	59	40	9.9	74	50
SOLAR SPACE COOLING	0.6	204	126	0.7	238	147	1.2	392	242	1.6	513	316	2.0	643	397
SOLAR WATER HEATING / SPACE HEATING [1]	6.3	1,007	NA	7.3	1,174	NA	12.1	1,936	NA	15.8	2,531	NA	19.8	3,175	NA
SMALL SOLAR WATER HEATING [1]	5,286.2	10,837	NA	5,210.5	10,682	NA	8,593.2	17,616	NA	11,234.1	23,030	NA	14,096.1	28,897	NA
NON-RESIDENTIAL POOL HEATING [1]	3.1	315	NA	3.7	367	NA	6.0	605	NA	7.9	791	NA	9.9	992	NA
Total - Incremental	**7,481**	**37,584**	**9,880**	**7,396**	**40,153**	**10,402**	**12,197.7**	**66,220**	**17,154**	**15,946**	**86,570**	**22,426**	**20,008.8**	**108,625**	**28,140**
Total - Cumulative	**9,508**	**51,619**	**13,372**	**16,904**	**91,771**	**23,774**	**29,102**	**157,991**	**40,928**	**45,048**	**244,561**	**63,354**	**65,057**	**353,187**	**91,494**

1) System capacity and size is depicted in kWh as these items are not electrical generators

EXHIBIT 2

APS Renewable Energy Acquisition Plan
Exhibit 2
July 27, 2007 Renewable Energy Acquisition Plan Forum Attendee List

Tom Alston	American Solar
Bud Annan	Annan Group
Jim Arwood	Arizona Department of Commerce (Energy Office)
David Berry	Western Resource Advocates
Bruce Bilbry	National Lighting
Bo Buckingham	NZ Legacy
Steven Chadima	Energy Innovations
Rob Davis	Forest Energy
Marylee Diaz Cortez	RUCO
Tom Dyer	Kyocera Solar
John Ellers	Solid Energy
Erik Ellis	AUSRA, Inc.
Rick Gilliam	SunEdison
Lori Glover	Solid Energy
Barbara Keene	Arizona Corporation Commission
Lisa Krueger	First Solar
Nader Jandaghi	Sun Tech America
Amy LeGere	Foresight Wind
Jay Leopold	SOLON America
Daniel Musgrove	Universal Entech, LLC
Michael Neary	Desert Sun Solar
Amanda Ormond	Ormond Group
Jim Pickles	AUSRA, Inc.
Ray Williamson	Arizona Corporation Commission
Pat Dinkel	Arizona Public Service
Barbara Lockwood	Arizona Public Service
Eran Mahrer	Arizona Public Service
Raymond Myford	Arizona Public Service
Erinn Andreasen	Arizona Public Service
Greg DeLizio	Arizona Public Service

EXHIBIT 3

Renewable Energy Stakeholder Update

July 27, 2007

APS
Renewable Energy

Agenda

- Welcome and Introductions
- Renewable Energy Acquisition Plan
  - Current Portfolio
  - 2007 Request for Proposals
  - Acquisition Process
  - Resource Assessments
- RES Filing Overview
  - Implementation Plan
  - Distributed Energy Administration Plan
  - Funding and Adjustor Design
- Discussion

APS Renewable Energy

Renewable Energy Acquisition Plan

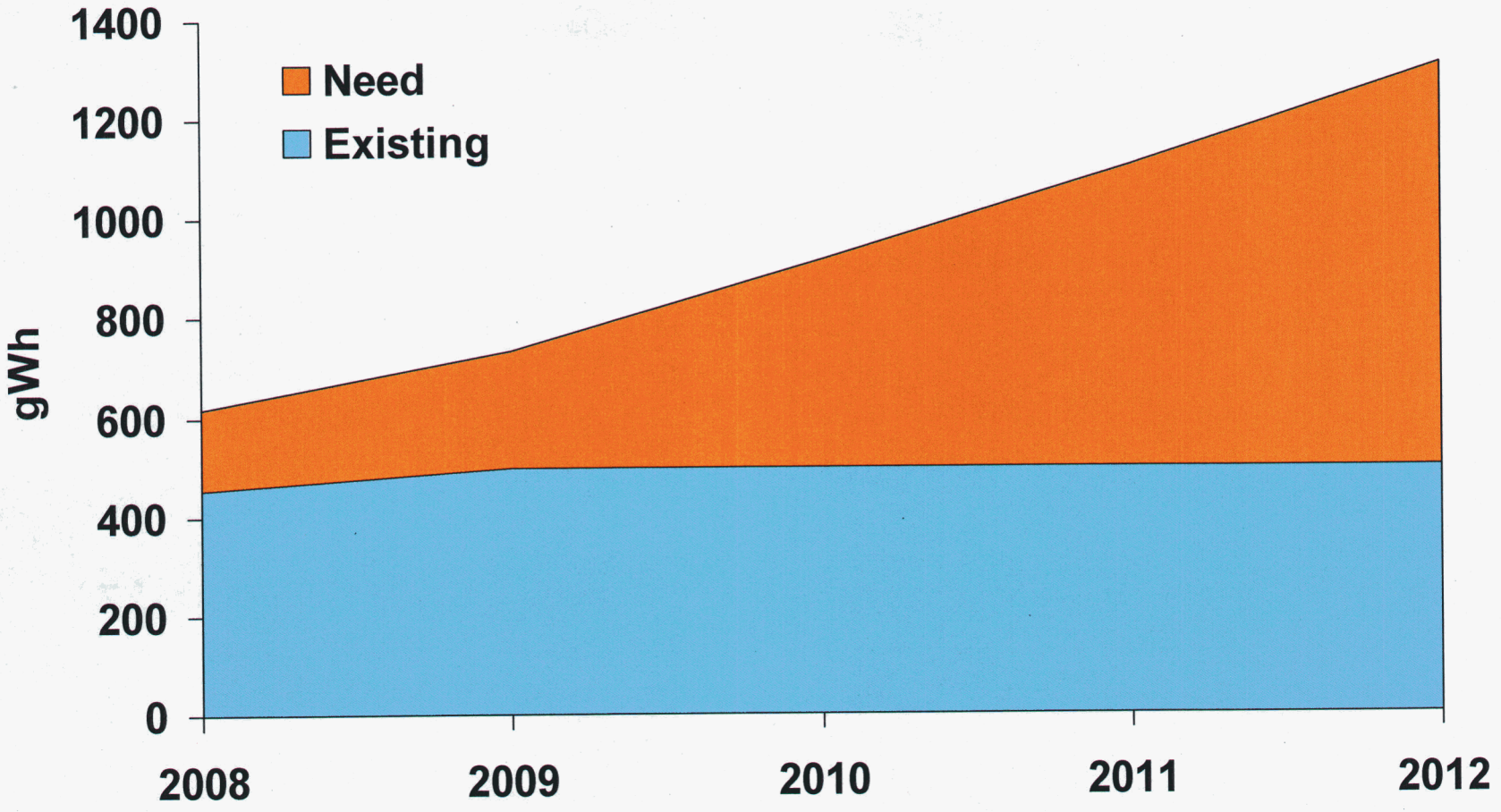
Current Portfolio

- In Operation: 106 MW
  - 90 MW Wind – New Mexico
  - 10 MW Geothermal – California
  - 6 MW Solar – Arizona

- Under Contract: 20 MW
  - 14 MW Biomass – Arizona
  - 6 MW Biogas – Arizona

APS Renewable Energy

Anticipated Energy Need



APS Renewable Energy

2007 Request for Proposals

- Schedule
  - Issued March 5, 2007
  - Responses received May 15, 2007
  - Short list notification June 11, 2007

- Projects/Respondents
  - Solar, wind, geothermal, biomass, biogas
  - Evidence of maturing market

- Next Steps
  - Currently evaluating short list
  - Final project selections expected in August 2007
  - Anticipate requesting ACC approval

Procurement Process

- Methods of acquisition
  - Request for proposals
  - Bilateral negotiations
  - Collaborations/Partnerships
- Renewable Procurement Process
  - Certified procedure
  - Independent auditor
- Evaluation and Selection Process
  - Open, competitive process
  - Economics based upon system avoided cost comparison
  - Project viability (e.g., fuel, equipment, permitting, developer experience, transmission)
  - Risk factors (compliance, credit, etc.)

Resource Assessments

- Black and Veatch Arizona Renewable Energy Assessment
  - Funded by APS, SRP, and TEP
  - Independent assessment of developable renewable resources in Arizona
  - Release to public in near future
- Wind Integration Study
  - Managed by Northern Arizona University
  - Evaluation of the impacts on system operation, reliability and costs
  - Technically rigorous and inclusive process
  - Release to the public in near future
- Concentrating Solar Power Siting Study
  - CSP Joint Development Group
  - Evaluation of premium areas for multiple utility project
  - Currently confidential
- General Conclusions
  - Solar is our largest resource
  - Significant wind potential
  - Some biomass and hydro
  - Very limited biogas and geothermal

RES Implementation Plan Filing

Exhibit 3

RES Implementation Plan Filing

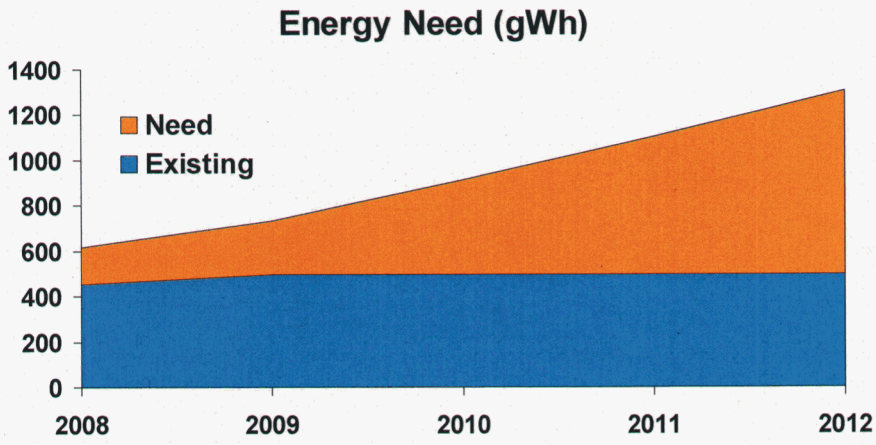
- Implementation Plan
  - Compliance plan
  - 5 year scope (2008 – 2012)
  - Energy, capacity, technology, process
  - Projected cost information (some confidential)

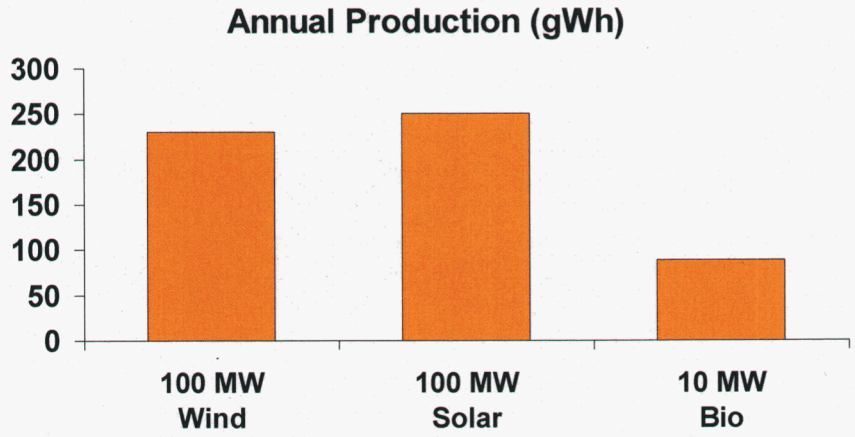
- Distributed Energy Administration Plan
  - Based on Uniform Credit Purchase Program working group recommendations
  - Specifies technologies, incentives, and process

- EPS (RES) Adjustor

Generation

- Plan identifies production from existing projects
- Describes anticipated needs of over 2,000 gWh through 2012
- Identifies acquisition processes, noting current RFP





APS Renewable Energy

Distributed Energy Administration Plan

- New technologies in addition to existing solar technologies (PV, SWH, HVAC)
  - Wind
  - Daylighting
  - Biomass
  - Geothermal

- Project Categories
  - Standard
  - Market-Based
  - Customer Self-Direct

Exhibit 3

Distributed Energy Administration Plan

- Incentives
  - Up front incentives
  - Production Based Incentives
- Process
  - Reservations
  - Equipment qualifications
  - Installer and Dealer Qualifications
- DE Review Panel
  - Members: Industry, Commission Staff, and APS
  - Authority to adjust program requirements

Distributed Energy

- Technology solutions
  - Web-based interface for customers and vendors
  - Agreement processing and workflow management
  - Automated customer billing
  - Performance information
  - Reporting

- Marketing
  - Messaging research
  - Multi-media campaign
  - Earned and placed media
  - Strategic alliances
  - APS website and other existing channels

Commercialization and Integration

- Renewable energy studies
- Collaboration with appropriate parties
  - Department of Energy
  - National Laboratories
  - Arizona Universities
  - Other utilities
  - Private Industry
- Leverage state and federal funding

Commercialization and Integration

- Three focus areas
  - Renewable technologies and available resources
  - Transmission and system integration impacts
  - Distribution system impacts

- Current examples
  - Wind Integration Study
  - Arizona Renewable Resource Study
  - CSP Siting Study

Funding & Adjustor

- RES funding to come from current EPS rate mechanisms, including Adjustor and base rates
- Filing will include request for 2008 funding
- Designed to honor proportionality requirement

Discussion